02920

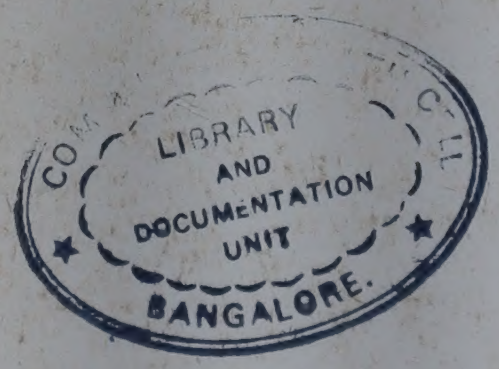
EFFECTS OF SEX EDUCATION ON YOUNG PEOPLE'S SEXUAL BEHAVIOUR

ANNE GRUNSEIT

SUSAN KIPPAX

National Centre for HIV Social Research (Macquarie Unit), Macquarie University,
North Ryde, New South Wales, Australia

Commissioned by the Youth and General Public Unit
Office of Intervention Development and Support
Global Program on AIDS
World Health Organisation



PREFACE

Sex education for children and young adults is one of the most hotly debated and emotive issues facing educationists today. The proponents of sexuality education claim that comprehensive, non-judgemental provision of information about sex and its possible consequences is necessary for young people, such that they can, when faced with decisions about sex, make responsible and health positive choices. They also contend that this does not "put ideas into children's heads", such that they become more sexually active than if they had not received any instruction. Opponents of sex education refute this claiming that exposure to such material is tantamount to condoning promiscuity, is a violation of parent's rights and an invasion of privacy (Scales, 1981). While public opinion is generally in favour of sex education, its more vocal and radical opponents, particularly in the United States, have severely limited its scope and implementation (Scales, 1981). The findings reported below indicate that sex education can have a beneficial effect on some of the potential outcomes of teenage sexual activity. It should be remembered, however, that drawing definitive conclusions with respect to this issue is extremely difficult. There are several hazards inherent in trying to evaluate the validity of either of these claims, even with the comparatively objective tool of scientific technique. Firstly, it is impossible to isolate either the experimental or control group from any other sources of information:- every day people are exposed to implicit and explicit messages about sex and sexuality. Further, people are active interpreters of educational and other messages, they do not simple passively absorb information. The individual receives information mediated by the cultural and sub-cultural understandings of the various groups to which that individual ascribes. Each person may respond differently to the same message, by modifying, forgetting, denying or disbelieving what they are exposed to. Education programs are therefore very complex, and have both intended and unintended consequences.

Conclusions can be drawn, however, by assessing the findings from a range of studies which attempt in various ways to control for and/or account for these confounding factors. The conclusions presented here are drawn from the following review of the sex education literature:

This review contains articles that were cited in the following databases:

PSYCLIT; SOCIOFILE; ERIC; APAIS; AUSTROM; MEDLINE; FAMILY RESOURCES; EMBASE; MENTAL HEALTH ABSTRACTS; PASCAL; SOCIAL SCISEARCH; PAIS INTERNATIONAL; DISSERTATION ABSTRACT'S ONLINE. Approximately 1050 articles were examined for relevant material. Where possible, papers were translated, however the language barrier did limit our ability to search non-English databases and access non-English journals. The articles in this review certainly do not represent an exhaustive search, although every attempt was made to find as many widely divergent sources of information as possible.

Data from as far back as the mid 1970s has been included in this report. Even though this work was done in pre-HIV/AIDS times, and therefore the content of sexuality instruction would have undergone change, the basic findings in terms of impact on sexual behaviour are still relevant. It appears that quite a number of studies were done at this time and many of the reports arrived at the same conclusions. These early studies discussed the same arguments and made the same recommendations for sex education as the later work. Yet, as evidenced by the discussions in these more recent papers, those findings are still yet to be systematically and appropriately applied, particularly in the US. In short the debate is not a new one. Indeed, one article which described Swedish sex education provides a historical perspective on the arguments dating back to the 1700s. It would appear that the polemics of sex education may be viewed not so much as products of the last two decades and its much-described "sexual revolution", but the latest step in the faltering progress towards an open and relevant discussion of sex with a public health and not a moral agenda.

INTRODUCTION

The work compiled in this report generally fell into three categories or methodology types which form the basic structure of this review. These are: controlled intervention studies, quasi-experimental designs and reviews. The general findings under each of these headings will be described, with a one or two particularly interesting and/or well conducted studies discussed greater detail. Two studies have been considered outside this framework as their findings conflict with the majority of the

others and therefore warranted separate discussion. A table outlining the major findings of each of the studies follows this discussion.

Research that dealt solely with knowledge and attitudes about sex have not been included in this review, and only the behavioural outcomes of other studies are reported. This is because studies have consistently reported the poor association between attitudes and knowledge, and behaviour. While these studies are important in their own right, they are not the focus of this review, and given the inadequacy of these measures in terms of predicting risk-taking behaviour, they may be misleading.

DISCUSSION

CONTROLLED INTERVENTION STUDIES

The majority of articles addressing the question of the impact of sex education in this review, did so by examining the outcomes of various programs in controlled experimental designs. These were conducted primarily with school or college students, and consisted of pre- and post-test measures of sexual activity and/or "markers" of "unprotected"' sexual activity (such as pregnancy/abortion/birth rates) in control and treatment groups. Sample sizes varied widely from 41 (Marcotte, 1977) to 4278 (Williams, 1985), with most sampling women and men, although a few single sex studies are reported. The majority were carried out in the United States of America which may limit the generalisibility of the results. However, the findings of these studies despite their variability with respect to sample size, course composition, course duration, country of origin and year of publication (1974 to 1992), are remarkably consistent. In general, the sex education programs either had no effect on levels of sexual activity and/or its outcomes, or they delayed initiation of intercourse, and/or reduced pregnancy/abortion/birthrates in instruction recipients. An exception to this trend was reported by Christopher and Roosa (1990). This study is described in detail under the section on exceptions. For the remainder of the programs evaluated in these articles, the weight of evidence was clearly against the notion that sex education leads to initiation or greater sexual activity.

Three controlled intervention studies actually reported a delay in initiation of sexual activity for those receiving sexuality instruction (Kirby, 1991; Howard and McCabe, 1990; Zabin, 1986). The study described by Howard and McCabe (1990) is often cited and is a good example of the use of the "social inoculation" theory of health education'. The program targeted 13 to 14 year old boys and girls, and consisted of only 5 periods of instruction by slightly older peers. It focussed on identifying social and peer pressures that may motivate early coital activity and how to resist such pressures. Those schools receiving the instruction, had lower proportions of male and female students initiating sex, particularly in the 8th and 9th grades (4% versus 20%; 24% versus 36% respectively) compared to those which did take part in the program. Contraceptive use was also higher amongst sexually active students who were the recipients of sex education. As a consequence, pregnancy rates for the female students in the program were lower: a result of both greater utilisation of effective contraception and less sexual activity. This highlights the importance of providing choices and information for both those who **are** and **are not** sexually active. Several studies have shown that messages about refraining from sexual activity can be effective for those who have not had sex prior to instruction. However, education containing these messages **alone** provide no protection against the unwanted outcomes of sex for those who are not practising restraint.

Reductions in pregnancy and birth rates were also reported by several authors (Howard and McCabe 1990; Dycus et al, 1990; "no author specified", 1989; Zabin et al, 1986; Williams et al, 1986). The study by Williams et al (1986) demonstrates the potential for dramatic changes in teenage unintended pregnancy by the provision of sex education and family planning services, and is worth briefly describing.

---

[1]In this review, the term "unprotected" intercourse is placed in inverted commas as the intention of the articles reviewed is to convey intercourse without the use of contraception, whereas in HIV/AIDS discourse unprotected intercourse generally refers to that which is enacted without condoms.

[2]This theory is based on the premise that it is possible to "immunize" people against social and peer pressures that encourage negative health behaviours.

The Appalachian Adolescent Health Education Project (AAHEP) which involved a total of 15 counties in East Tenessee, targeted 4278 teenagers aged 11-18 years. After three years of program implementation, the relative risk of pregnancy for teenagers in the target counties (i.e. those receiving the program) went from a baseline of 27.6 to 23.3, but in control counties it remained stable (26.6 to 26.1). Live births were also significantly reduced in program counties compared to a marginal **increase** in control counties. This study demonstrates the efficacy of a combination of education and access to clinical services in reducing teenage pregnancy. It also indicates that the effects of sex education initiatives may be observed on a larger scale than a single school or college class or institution.

Reduction of "unprotected" intercourse was also a desired outcome of some of these programs and it was achieved in 3 (Barth et al, 1992; Howard and McCabe, 1990; Eisen et al; 1987). However, as teenage pregnancy is often the primary focus for many of these programs, unfortunately no distinction is made between condom usage and other contraceptive methods when discussing "unprotected" intercourse. It has been documented that there is a trend for the oral contraceptive to be used increasingly with age and in regular relationships (Jones et al, 1985). As the thrust of many sex education programs is derived from aiming to reduce unintended pregnancy, this presents a problem in the prevention of STDs through sex education. It would require a major shift in emphasis to promote condoms over other contraceptives in order to address the problem of HIV and other STD transmission.

Controlled intervention studies have allowed a dose-focus view of the impact of sex education. They have provide an environment in which there can be tight control over program content, and study sample and as such have shown sex education is not an incentive to "go out and have sex", but that sex education may lead to responsible and health positive choices for young people. In Iiis 1985 metaanalysis of 14 controlled interventions, Kirby concluded that a more accurate estimate of the capacity of sex education is needed. While the accusation that it incites sexual activity is unfounded, posing sex education as the panacea for the unacceptable rates of teenage unintended pregnancy and STDs is unrealistic. It should be recognised that these sex education programs represent only one source of information about sex and often not the most

influential (Spanier, 1976). It is interesting to note that those reporting positive changes date from the mid-eighties to the present. This could be due to a reorientation of sex education curricula away from merely providing reproductive information (which characterised the programs of the 1970s), towards skilling, provision of practical information about contraception and acknowledging the "social" nature of sexuality: i.e. recognising that choosing to or not to have sex has social meaning, consequences and implications for public and private identity.

QUASI-EXPERIMENTAL DESIGNS

There were 5 studies which could be described as quasi-experimental, which were all (interestingly) conducted outside of the United States (Blanchard et al, 1992; Wielandt et al, 1992; de Vroome et al, 1991; Sakondavat et al, 1988; National Committee on Health Education, 1978). In general, they examined the impact of an intervention on a larger scale than the controlled intervention studies, and did include control groups as such. The three studies published in the 1990s evaluated campaigns that covered FUV/AIDS issues, particularly condom use. AH of these studies reported increases in condom use after the intervention, but with no accompanying increase in sexual activity, or lowering of age of first intercourse. The Swiss study by Blanchard et al (1993) found dramatic increases in **regular** use over the five year period 1987 to 1992 (n= 817 and 735 respectively: 16-19 years). Further, the proportions of the sample that were sexually active were stable over this time, and there were no increases in the number of sexual partners the respondents had. These findings support those found in the controlled intervention studies: Safer sex can be achieved by education and its implementation does not imply greater sexual activity. It could also be said that FHV/AIDS education provides a lever by which condoms may be promoted, thereby expanding the notion of "protected" sex beyond contraception.

CROSS-SECTIONAL SURVEYS

Another method that has been used to examine the relationship between sex education and sexual activity is the cross-sectional survey. These studies did not randomise the subjects to treatment and control conditions nor did they manipulate the

intervention, but surveyed whether they had or had not received sexuality and/or contraceptive instruction and documented subsequent sexual behaviour. Again, much of the work described here was conducted in the United States (Ku et al, 1992; Dawson, 1986; Philliber et al, 1982; Zelnik and Kim, 1982; Spanier et al, 1978), although there was also one study from Australia (Siedlecky, 1979) and one from Mexico (Pick-de-Weiss et al, 1990). With one exception (Marsiglio and Mott, 1986: see section on exceptions), these studies did not report any increase in sexual behaviour (either lower age of onset, or number of partners) attributable to having received sex education. Further, the most recent study by Ku et al (1992), that sampled over 1800 men aged 15-19 years, found that the majority of these men had received formal instruction on AIDS, birth control, and resisting sexual activity and this was associated with decreased numbers of sexual partners, and frequency of intercourse. This instruction was also associated with increased condom use. The main conclusion to be drawn from these research examples is that exposure to sex education in and of itself does not lead to greater sexual involvement, irrespective of whether the recipient is sexually experienced or not. The greatest impact on contraceptive use however can be achieved when sex education is given **prior** to the initiation of sexual activity (Dawson, 1986), and this type of discussion also does not lead to greater sexual activity (Siedlecky, 1979).

REVIEW STUDIES

The final and most "broad" type of research covered in this report is the review study. This work detailed the impact of sex education with a perspective that encompassed an examination of the association between sex education policy, availability of clinical and family planning services (and many other factors associated with pregnancy and birth control) and sexual activity and its outcomes (pregnancy/birth and abortion rates) (Siedlecky, 1987; Edelman et al, 1986; Jones, 1985; Krager et al, 1981; Singh, 1985). These reviews provide an interesting and valuable background against which the findings of more narrowly focussed research can be interpreted. The international research in particular provided a fascinating insight into the effects of cultural and social context on the interaction of sex education, sexual activity and its consequences. Jones et al (1985) in her remarkable 37 country comparison of teenage pregnancy, made a detailed examination of the impact of:- government policy on education, financial support for abortion and single parents, religiosity, openness about

sexuality, ethnicity, marriage laws on teenage pregnancy and sexual activity. The findings of this analysis were often contrary to commonly held beliefs about the interplay of these factors. For example, those countries that rated most highly on openness about sex were also those that experienced the lowest birthrates; low teenage fertility was associated with the teaching of birth control in schools; and low birth rates were associated with low abortion rates. The United Stares, whose governmental policy demonstrates an ambivalence towards sex education, was found to have by far the highest teenage pregnancy, birth and abortion rates according to a detailed subanalysis comparing the US, Canada, England and Wales, Sweden, The Netherlands, and France. Welfare payments, minority issues or teenage unemployment did not account for this discrepancy. It is apparent from this study that those countries that address teenage sexuality in a frank, open and supportive manner experience reduced negative consequences of sexual activity, without unduly encouraging it. If discouraging the discussion of sex and access to family planning services in an effort to deter or shield teenagers from sex was effective, the US should have experienced one of the lowest teenage pregnancy rates. Instead, for 1980, 15-19 year olds in the US had a pregnancy rate of 96/100 females, over double that of the nearest countries (England and Wales:45/1000) and nearly 7 times of the sexually open Netherlands (14/1000). Jones et al (1985) conclude that "...increasing the legitimacy and availability of contraception and sex education (in its broadest sense) is likely to result in declining teenage pregnancy rates" (p 61).

A complementary study by Singh (1985), conducted a similar analysis which was based on an interstate (as opposed to intemational) comparison within the United States. As the teenage pregnancy rate has a wide variability within the US, the author thought it would be valuable to investigate the factors associated with high and low rates of teenage fertility. In contrast to the intemational analysis (Jones et al, 1985), a higher abortion rate was inversely correlated with the birth rate. It could be speculated that in the US, the pregnancy rate was already high, and birth rates were only offset by the number of teenagers deciding on termination; in other countries, however, teenage pregnancy rates were low, as were birth and abortion rates because of effective contraception (given levels of sexual activity were comparable). However, this is only one interpretation which remains speculative. In terms of sex education, state policy and its implementation are highly variable within and between states. Sex education was assessed by looking at the proportions of teenagers receiving sex education in junior and

senior high school, the amount of class time devoted to this instruction, whether parental consent was required and the liberality of the states policy towards sex education. The only statistically significant result was an inverse relationship between proportion of senior high school students receiving sex education and pregnancy rates'. This study reflects the findings noted in previous sections that sex education either does not have an effect on teenage pregnancy or decreases it.

THE "EXCEPTIONS"

There were two studies that represented exceptions to the general trends of the work described in previous sections. The first was an evaluation by Christopher and Roosa (1990), of an abstinence-only" program. The study was quasiexperimental and had a sample size of 320 male and female students. The program as the name suggests, sees abstinence as the most desirable way of preventing teenage pregnancy. However, for both pre-test virgins and non-virgins, the only statistically significant result was that those in the program **increased** their mean level of sexual interaction from pre- to post-test and the controls did not. In order to interpret this finding in the context of the overwhelming contrary evidence provided with other sex education programs, it should be remembered that abstinence-only approaches are based a philosophy that is primarily premarital-sex-negative, and discussion of birth control is discouraged. It could be said that sexuality education in this climate is perhaps a misnomer, and the findings of Christopher and Roosa support those of the other studies: that is that denial, whether through inaction, or action which does not give teenagers comprehensive, supportive and non-judgemental advice whether they are sexually active or not, is unlikely to reduce teenage sexual activity or its potentially negative outcomes.

---

[3]Unfortunately this study did not have a direct measure of sexual activity, and therefore this result could be attributable to lower sexual activity in those states reporting lower pregnancy rates or more effective use of contraceptives.

[4]We rely here on the review by Allgeier commissioned by WHO in 1993.

The second study which reported an association between sex education and increased sexual activity was contained in the article by Marsiglio and Mott (1986). In this sample of 14-22 year olds, who were followed 5 over a five year period, prior exposure to a sex education course was positively and significantly associated with the initiation of sexual intercourse at 15 and 16 years of age, but not at 17 or 18 years. As with any other survey, correlation does not imply causality, however this result can not be entirely over-looked. It is important to note, however, that the effect of sex education, was less important (according to the statistical model proposed by Marsiglio and Mott, 1986), than infrequent church attendance, parental education less than 12 years and black race. Indeed, in the prediction of whether an individual will become sexually active, after these other factors have been accounted for, sex education increases the likelihood by only a very small margin. Further, in the context of all of the results of this study, the authors conclude that "...it is unlikely that sex education courses win substantially alter teenage (sexual) behaviour" (p 161).

CONCLUSION

In summary, the overwhelming majority of artides reviewed here, despite the variety of methodologies, countries under investigation and year of publication, find no support for the contention that sex education encourages sexual experimentation or increased activity. If any effect is observed, almost without exception, it is in the direction of postponed initiation of sexual intercourse and/or effective use of contraceptives.

Many of the studies used unplanned pregnancy as the behavioural outcome or endpoint in evaluating programs and/or the extent of "unprotected intercourse" in a sample. Even pregnancy rates underestimate the number of occasions on which unsafe sex takes place, as not every coital act results in conception. It is clear that the opportunities for transmission of HIV and other STDs are unacceptably frequent and could be reduced with effective and appropriate provision of clinical and prophylactic services.

It would seem from the studies in this review, the best outcomes are obtained

when education is given prior to onset of sexual activity. Given that some young people can be sexually active at 12 years of age, instruction should be initiated well before this time. To quote Warren Mc Nab (1981):

> "The question is not whether children will get sex education, but how and what kind they will receive. It is impossible to hide children from sexual influences. Adult role models, television, advertisements and parents bombard young children with them .... silence and evasiveness are just as powerful teachers as a discussion of the facts." p 22.

Asking teenagers to discuss what has previously been a taboo subject at a time of great emotional and physical upheaval is, to say the least, difficult, and presupposes the knowledge of a language in which to do so. It is surprising, given the ambivalence of policy makers in many developed countries that the studies described above have reported the success with sex education that they have.

Failing to provide appropriate and timely information and services for fear of condoning and encouraging sexual activity is not only based on assumptions that are **not** borne out by objective analysis, but misses the opportunity of reducing the unwanted outcomes of unintended pregnancy and transmission of STDs, and is therefore in the disservice of our youth.

STUDY	DESIGN	INTERVENTION	SAMPLE	IMPACT; KEY FINDINGS
Blanchard, M et al 1993 Switzerland	Cross-sectional survey	Public information campaign carried out in schools, youth centres at social and sporting events over 5 years	2911 male and females 16-19 years	- no significant trends in proportion sexually active over 5 years - of those sexually active, no increase in number of partners over 5 years - large increase in regular condom use from 1987 to 1992
Barth, P et al 1992 USA	Controlled Intervention	2 programs - 15x50 minute modules	n = 722; age:μ = 15.4 years; male and female	- Data from the 18 month follow-up indicate that the program significantly delayed initiation of unprotected sex for those who were inexperienced prior to the program
Ku, KL et al 1992 USA	Cross-sectional survey	Evaluated a sample who had had formal instruction in AIDS, birth control, STDs, and resisting sexual activity	n = 1,880; men aged 15-19 years	- AIDS and sex education were associated with decreased levels of sex partners and intercourse frequency and increased levels of condom use
Weis, DL et al 1992 USA	Intervention	Human sexuality course	n = 172; university students (no age specified)	- no significant change in the group's sexual behaviour - interaction between individual's pre-program behaviour and attitudes and changes during course

Wielandt, HB et al 1992 Denmark	Quasi-experimental	Pre-test prior to public information of HIV/AIDS (1984) post-test 1989	n = 1381; 16 - 20 years male and female	- age profiles for first coitus were found to be almost identical in 1984 and 1989 - in 1989 significantly more had used contraception at first coitus (61.5% vs 39.3%)
Kirby, D et al 1991 USA	Controlled intervention	15 skills-based lessons focussing on contraception and postponing sexual intercourse	n = 758 males and females aged 15 to 18 years	- significant delayed initiation of first intercourse at 18 months follow-up - for those who were virgins at pre-test a significant reduction in proportion initiating unprotected sex
de Vroome, EM et al 1991 Netherlands	Quasi-experimental Intervention	Mass media safe sex campaign	n = 976; 18 - 24 years male and female	- greater use of condoms in the last 6 months among those who noticed the campaign
Christopher, FS and Roosa , MW 1990 USA	Quasi-experimental Controlled	Abstinence program	n = 320 males and females 12 - 13 years	- in crease in lifetime sexual behaviour in those taking the program, particularly for males
Dycus, S et al 1990 USA	Intervention	9 week human sexuality curriculum	11-13 years male and female	- there was a drop in the pregnancy rate in the first year of the pilot program
Howard, M and McCabe 1990 USA	Controlled Intervention	5 period peer-led instruction	536 males and females 13-14 years	- delayed initiation of sexual intercourse for those receiving instruction (particularly for girls) - reduction in number of pregnancies for those in course

Pick-de-Weiss et al 1990 Mexico	Intervention	Sex education course	n = 392; 16-17 years females	- the mere fact of attending a sex education course did not affect initiation or continuation of sexual or contraceptive behaviour
no author specified, in "contraception-fertilité-sexualité" 1989 France	Controlled Intervention	Individualised information program on abortion, pregnancy and STDs	n = 190; 15-18 years male and female	- significant reduction in pregnancy between informed group (2%) and control group (20%) - STDs in boys in informed group (4.3%) and controls (11.5%) - a girl who has received information has a risk of having intercourse without contraception 2.3 times lower than if she had not received this information
Sakondhavat, C et al 1988 Thailand	Quasi-experimental design	Sex education including contraception instruction	n = 520 males an females attending vocational school	- no increase in sexual activity - increase in contraceptive use
Eisen, M et al 1987 USA	Controlled Intervention	15 hour health-based education program	n = 120; 13 - 18 years male and female	- neither promoted experimentation or widespread constraint - positive changes in contraceptive use and communication with parents about sex
Siedlecky, S 1987 Australia	Review	-	-	- even though there has been an increase in the number of school programs on sexuality education there has not been a concomitant increase in teenage pregnancies and births

Davidson, JK et al 1986 USA	Controlled Intervention	Human sexuality course	n = 173; junior and senior college male and female	- demonstrated that acquisition of knowledge of human sexuality did not result in increased participation in sexual intercourse - ever had or frequency
Dawson, DA 1986 USA	Survey		n = 1888 females aged 15-19 years	
Edelman, MW et al 1986 Multi-nation	Review	Comparing the US with other developed nations on education, sexual behaviour , teenage pregnancy and abortion	-	- withholding sex education and family planning services has not led to less teenage sex activity in the US - the provision of needed information and services in Europe and Canada has not resulted in increased sexual activity but heightened sexual responsibility
Marsiglio, W and Mott, FL 1986 USA	Survey	Retrospective longitudinal questionnaire asking if taken a sex education course in school	n = 12069 males and females 14 - 22 (over 5 years)	- prior exposure to a sex education course positively and significantly associated with initiation of sexual activity at 15/16 , but not 17/18 - those who had taken a sex education course more likely to use effective contraception
Singh, S 1986 USA	Review	Interstate comparison in the US on sex education, abortion, pregnancy and birth rates	-	- a higher proportion of senior high school students receiving sex education is strongly associated with lower pregnancy rates

Zabin, LS 1986 USA	Controlled Intervention	3 year sex education and counselling program and contraceptives available at clinic nearby	n = 2950 male and females 13 - 18 years	- delayed initiation of intercourse for those who took part in the 3 year program (particularly for those < 16) - reduction in number of pregnancies
Dignan, M et al 1985 USA	Controlled Intervention	3 hours x 15 week Human sexuality course	n = 204; Sophomore year male and female	- no increase in sexual intercourse, but more oral sex
Jones et al, 1985 Multi-nation	International Review	37 country analysis of teenage pregnancy	females </= 19 years	- teenage pregnancy rates are lower in countries where there is a greater availability of contraceptive services and sex education - levels of sexual activity in the US are not very different from those in countries with much lower teenage pregnancy rates
Williams, JE et al 1985 USA	Controlled Intervention	At least 1 x 50 minute instruction on reproduction, contraception, STDs, decision making and values	n = 4,278; age 11 - 18 years females only	- birth rates declined from 24.3/1000 to 19.7 in target counties compared to an increase of 24.7 to 26.1/1000 in control counties
Philliber, SG et al 1982 USA	Cross-sectional Survey	Compared sex educated (Life Science 1 year course) with non-sex-educated	n = 268; 10, 11, 12th graders male and female	- no support for the notion that sex education encouraged or discouraged sexual activities

Zelnik, M and Kim, YJ 1982 USA	Survey	-	n = 3711 males and females 15 - 19 years	- those who had sex education no more likely to have intercourse, but are more likely to use contraceptives
Krager, F et al 1981 USA	Review of STD research	-	-	- cited 2 studies that claimed that STD rates soared following legislation which restricted classroom instruction on human sexuality, and decreased following re-intensification of STD instruction
Yarber, W et al 1981 USA	Controlled Intervention	16 week Human sexuality course	n = 150; mainly between 18 - 23 years male and female	- no increase in sexual activity from pre to post- test - more masturbation noted in females and more oral-genital contact noted in males
Siedlecky, S 1979 Australia	Survey on sources of information for birth control	-	18 - 25 years unmarried males and females	- no evidence that discussion of birth control increased the level of sexual experience
National Committee on Health Education, 1978 Sweden	Quasi-experimental Design	3 year public information campaign	14 - 19 years	- dramatic drop in youth abortions and number of teenage pregnancies in the third year of the program
Spanier, GB 1978 USA	Cross-sectional survey	Sex education course at either junior or senior high school	n = 1177; college students male and female	- individuals who had enrolled in a course in junior or senior high are neither more or less likely to engage in premarital sex behaviour than those who had not

Bernard, HS et al 1977 USA	Controlled Intervention	1 semester sex education course	n = 275; college students male and female	- students in the course did not show significant increases or decreases in sexual activity
Marcotte, DM et al 1977 USA	Controlled Intervention	3 day Medical sex education course	n = 41; medical students	- little to no effect on student's behaviour was noted
Zuckerman, M et al 1976 USA	Controlled Intervention	15 week Human sexuality course	n = 555; age μ = 20.3 years male and female	- no behavioural changes for females - for males, increases in heterosexual experiences, masturbation and orgasm primarily due to an increase with existing partner - there was no increase in number of heterosexual partners
Rees, B et al 1974 USA	Intervention	Sex education course	n = 230; college students male and female	- attitudes change but behaviour didn't

SOURCE: Anne Grunseit
Susan Kippax
National Centre in HIV Social Research (Macquarie Unit)
Macquarie University, Australia

REFERENCES

Barth, RP, Fetro, JV, Leland, N, Volkan, K. "Preventing Adolescent Pregnancy with Social and Cognitive Skills". Journal of Adolescent Research 1992; 7 (2): 208-232.

Bernard, HS, Schwartz, AJ. "Impact of a human sexuality program on sex-related knowledge, attitudes, behavior and guilt of college undergraduates". Journal of the American College Health Association 1977; 25 (3):182-185.

Blanchard, M, Narring, F, Michaud, PA, Dubois-Archer, F. Poster presentation, Track D, PO-DO2_3474, IXth Interbnational Conference on AIDS, Berlin, Germany, June 6-11, 1993.

Christopher, FS, and Roosa, MW. "An evaluation of an adolescent pregancy prevention program: Is "just bsay no" enough?". Family Realtions,; 39: 68-72.

Committee on Health Education, National Swedish Board of Health and Welfare: "Living together: A family planning project on Gotland, Sweden". 1978.

Davidson, JK, Darling, CA. "The impact of college-level sex education on sexual knowledge, attitudes and practices: The knowledge/sexual experimentation myth revisited". Deviant Behavior 1986; 7:13-30.

Dawson, DA. "The eefcts of sex education on adolescent behaviour". Family Planning Perspectives 1986; 18 (4): 162-170.

Dignan, M, Denson, D, Anspaugh, D, C'mich, D. " Effects of sex education on sexual behaviors of college students". Adolescence 1985; 20 (77):171-178.

Dycus, S, Costner, GM. "Healthy early adolescent development (11-13 year olds):Implementing a human sexuality curriculum for seventh graders". Elementary School Guidance and Counselling 1990; 25 (1):46-53.

Edelman, MW, Pittman, KJ. "Adolescent pregnancy: Black and White". Journal of community Health 1986; 11 (1):63-69.

Eisen, M, Zellman, GL. "Changes in incidence of sexual intercourse of unmarried teenagers following a community-based sex education program". The Journal of Sex Research 1987; 23 (4): 527-544.

Howard, M, McCabe, HB. "Helping teenagers postpone sexual involvement". Family Planning Perspectives 1990; 22: 21-26.

Jones, EF, Forrest, JD, Goldman, N, Henshaw, SK, Lincoln, R, Rosoff, JI, Westoff, CF, Wulf, D. "Teenage pregnancy in developed countries: Determinants and policy implications". Family Planning Perspectives 1985; 17 (2): 53-63.

Kirby, D. "Sexuality education: a more realistic view of its effects". Journal of School Health 1985; 55 (10: 421-424.

Kirby, D, Barth RP, Leland, N, Fetro, JV. "Reducing thre risk: Impact of a new curriculum on sexual risk-taking". Family Planning Perspectives 1991; 23: 253-263.

Krager, F, Wiesner, PJ. "STD education:Challenge for the 80s". The Journal of School Health 1981; 51:278-281.

Ku, LC, Sonenstein, FL, Pleck, JH. " The association of AIDS education and sex education with sexual behaviour and condom use among teenage men". Family Planning Perspectives 1992; 24:100-106.

Marcotte, DM, Logan, C. "Medical sex education: Allowing attitude alteration". Archives of Sexual Behavior 1977; 6 (2):155-162.

Marsiglio, W and Mott, FL. "The impact of sex education on sexual activity, contraceptive use, and pre-marital pregnancy, among American teenagers". Family Planning Perspectives: 18 (4): 151-162.

McNab, W. "Advocating elementary sex education". Health Education 1981; Sept/Oct: 22-25.

No author specified. "Etude préliminaire sur la prévention des interruptions volontaires de grossese (IVG) et des maladies sexuellement transmissibles (MST) chez l'adolescent par une information enclasse de troisième". [Preliminary study on the prevention of voluntary terminations of pregnancy and of sexually transmitted diseases in the adolescent by giving information in the third year (of secondary school)]. Contraception-fertilité-sexualité 1989; 17:1021-1026.

Olsen, JA, Weed, SE, Ritz, GM, Jensen, LC. The effects of three abstinence sex education programs on student attitudes toward sexual activity. Adolescence 1991; 26 (103):631-641.

Philliber, SG, Tatum, MC. "Sex education and the double standard in school". Adolescence 1982; 17 (66):273-283.

Pick-de-Weiss, S, Diaz-loving, R, Andrade-Palos, P, David, HP. "Effect of sex education on the sexual and contraceptive practices of female teenagers in Mexico City". Journal of Psychology and Human Sexuality 1990; 3 (2):71-93.

Rees, B, Zimmerman, S. "The effects of formal sex education on the sexual behaviors and attitudes of college students". Journal of the American College Health Association 1974; 22 (5): 370-371.

Sakonhavat, C, Leungtongkum, P, Kanato, M, Kuchaisit, C. "KAP study on sex reproduction and contracepytion in Thai teenagers". Journal of the Medical Association of Thailand 1988; 71 (12): 649-652.

Scales, P. "The oppposition to sex education: A powerful threat to a democratic society". The Journal of School Health 1981; April: 300-303.

Siedlecky, S. "Sexuality education and the needs of young people". Healthright 1987; 6 (4): 11-16.

Siedlecky, S. " Sex and contraception before marriage". (Australian Family Formation Project monograph no. 7) 1979, Department of Demography, Institute of Advanced Studies, Australian National University, Canberra.

Singh, S. "Adolescent pregnancy in the United States: An interstate analysis". Family Planning Perspectives 1986; 18 (5): 210-220.

Spanier, GB. "Sex education and premarital sexual behavior among American college students". Adolescence 1978; 13 (52):659-674.

Spanier, GB. "Formal and informal sex education as determinants of premarital sexual behavior". Archives of Sexual Behavior 1976; 5 (1): 39-67.

de Vroome, EMM, Sandfort, TGM, de Vries, KJM, Paalman, MEM, Tielman, RAP. "Evaluation of a safe sex campaign regarding AIDS and other sexually transmitted diseases among young people in the Netherlands. Health Education Research 1991; 6 (3): 317-325.

Weis, DL, Ranbinowitz, B, Ruckstuhl. MF. "Individual changes in sexual attitudes and behavior within college level human sexuality courses". Journal of Sex Research 1992; 29 (1):43-59.

Wielandt, HB, Jeune, B. "Har samlejedebut aendret sig efter "Sikker-sex"-kampagnen?". [Has the age at sexual debut changed after the Safe Sex campaign?]. Ugeskr Laeger 1992; 154 (5):271-275.

Williams, JE, Achilles, CM, Norton, CP. "Appalachian adolescent health education project (AAHEP) evaluation: A study of teen pregnancy in East Tenessee (1982-1985). Paper presented to the Mid-South Educational Research Association (MSERA) Biloxi, MS, November 1985.

Yarber, WL, Anno, T. "Changes in sex guilt, premarital sexual intimacy attitudes and sexual behavior during a human sexuality course". Health Education 1981; Sept/Oct:17-21.

Zabin, LS, Hirsch, MB, Smith EA, Streett, R, Hardy, JB. "Evaluation of a pregnancy prevention program for urban teenagers". Family Planning Perspectives 1986: 18: 119-126.

Zelnik, M and Kim, YJ. "Sex education and its association with teenage sexual activity, pregnancy, and contraceptive use". Family Planning Perspectives 1982; 14: 117-119, 123-126.

Zuckerman, M, Tushup, R, Finner, S. "Sexual attitudes and experience: Attitude and personality correlates and changes produced by a course in human sexuality". Journal of consulting and clinical psychology 1976; 44 (1): 7-19.